

CLAIMS

1. A composition of hydrocarbon fuel, in the low vapor pressure range to very low vapor pressure range, and carbon dioxide (CO₂) wherein the concentration of CO₂ within the fuel is sufficient in volume to achieve a substantial reduction in exhaust soot particulate when the fuel is consumed by engine combustion.
 2. A composition of hydrocarbon fuel, in the low vapor pressure range to very low vapor pressure range, wherein commercial grade of recycled carbon dioxide CO₂ is used and wherein the concentration of CO₂ within the fuel is sufficient in volume to achieve a substantial reduction in exhaust soot particulate during engine combustion.
 3. The composition of claim 1 and 2 wherein said CO₂ is mixed under normal temperature and pressure within said fuel, and the CO₂ does not react chemically with the fuel.
 4. The composition of claim 1 and 2 wherein the combination of said fuel and said CO₂ is employed to improve fuel economy.
 5. The composition of claim 4 wherein the combination of said fuel and said CO₂ is employed to provide a net reduction in CO₂ production in engine exhaust.
 6. The composition of claim 1 and 2 wherein the combination of said fuel and said CO₂ is employed to provide a net fuel cost savings.
 7. The composition of claim 1 and 2 wherein the combination of said fuel and said CO₂ is employed to reduce fuel viscosity without entering into a chemical reaction.
 8. A composition of: liquid hydrocarbon fuel, in the low vapor pressure to very low vapor pressure range, and carbon dioxide CO₂; wherein the concentration of CO₂ within the fuel is less than 1 atmosphere of pressure and sufficient in volume to provide a substantial supply of inert gas for use in fuel tank ullage inerting purposes and the CO₂ does not react chemically with the fuel.
 9. The composition of claim 8 wherein: hydrocarbon fuel is in the low vapor pressure to very low vapor pressure range, and uses a commercial grade of recycled carbon dioxide CO₂ wherein the concentration of CO₂ within the fuel is sufficient in volume to provide a substantial supply of inert gas for use in fuel tank ullage inerting purposes.
 10. The composition of claim 8 wherein the combination of enhanced fuel by the added CO₂ provides an improved fuel fire safety factor when said enhanced fuel is transferred and stored.

- 1 11. The composition of claim 8 wherein the combination of said fuel and said
2 CO₂ acts as a self-inerting fuel.
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4 12. The composition of claim 8 wherein the combination of said fuel with said
5 CO₂ provides that said fuel acts as a ‘weightless container’ for transferring and
6 storing substantial volumes of CO₂ without additional containment vessels.
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8 13. The composition of claim 8 wherein the combination of said fuel containing
9 said CO₂ wherein that concentration of CO₂ in the fuel may be extracted from
10 the fuel by mechanical means.
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12 14. The composition of claim 8 wherein the combination of said fuel and said
13 CO₂ is transferable and storable in, existing closed fuel distribution systems and
14 fuel delivery equipment such as those used at airports and other re-fueling
15 terminals.
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17 15. The composition of claim 8 wherein the combination of said fuel and said
18 CO₂ provides a new means for safely extending Jet-A fuel supplies by mixing in
19 percentages of JP-4 or naphtha into CO₂-enriched Jet-A.
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21 16. The composition of claim 8 wherein the combination of said fuel receiving
22 said CO₂ provides substantial fuel de-oxygenation during the CO₂/fuel mixing
23 process.

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